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REMARKS

Original Claims 1-22 were pending in the subject application, including independent Claims 1, 13, and 22. Entry of the amendment set forth above does not change the number or type of original Claims 1-22, but adds new Claims 23-26, such that Claims 1-26, including independent Claims 1, 13, 22 and 23, are pending after entry of the current amendment.

In section 1 of the current Office Action, the Examiner provisionally rejects all of the claims under the judicially created obviousness-type double patenting over copending application 09/687,199, filed the same day as the subject application. This grounds for rejection is believed to be obviated by the current amendments to the independent claims, such as the new clause (a) of Claim 1. However, if the claims of the subject application are not patentably distinct over claims of copending application 09/687,199 when the latter application is allowed, then a terminal disclaimer/ownership disclaimer will be executed at that time.

In section 2 of the current Office Action, the Examiner objects to Figures 1, 2 and 3 as requiring a designation as "Prior Art." Figures 2 and 3 are amended hereby as requested by the Examiner. However, Figure 1 is referenced in regard to the description of material in the Detailed Description of the Invention. It is respectfully submitted that designation as "Prior Art" would improperly imply that such description is not new, and, as such, the Applicants respectfully decline to make such an apparent admission.

In section 3 of the current Office Action, the Examiner objects to the terms "T_Add" and "PSMM." These objections have been responded to by amendment of the relevant claims.

In section 4 of the current Office Action, the Examiner rejects Claims 1-22 under 35 USC § 112 as indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention, and in particular asserts that the phrase "different generations" is unclear for purposes of the claims. The offending term has accordingly been omitted from each independent claim, and has been clarified when used in other claims, thereby overcoming this grounds of rejection.

In section 5 of the current Office Action, the Examiner rejects pending Claims 1, 2, 4-7, 9, 11-18, and 21 under 35 USC § 103(a) as obvious over U.S. Patent 6,567,666 to Czaja ("Czaja") in view of U.S. Patent 6,233,455 to Ramakrishna ("the '455"). As described in more detail below, this grounds for rejection is respectfully traversed, and the claims are also clarified to underscore distinctions over the cited prior art.

Amendments to the Claims

No new matter is added by the current amendments. Support for the amendments is identified, and certain other observations in regard to the amendments are set forth, in this section.

In independent Claims 1, 13, and 22, the added phrase "reverse-link" (which has also been added in dependent Claims 9-11) is supported, for example, by FIGURES 6a, b and 8a, b, and throughout the specification. The amendment is not narrowing, but merely provides consistency with the requirement of "reverse-link handoff" that is already set forth. A phrase requiring that the serving and target base stations be of different generations has been deleted to obviate the Examiner's rejection under 35 USC 112, second paragraph. Such deletion is not narrowing, and also does not constitute adding new matter, because the phrase merely constituted inessential suggested usage for the invention, and was certainly not an essential element. The new temporal requirement, set forth in new clause (a) of Claim 1, that certain acts relevant to reverse-link handoff must occur after receiving a direction to handoff (e.g., an HDM), is supported for example by FIGURE 6b, as well as throughout the Applicants' specification.

A clarification has been made in former clauses (a) and (b) (now clauses b and c) of Claim 1, as supported, for example, by step 207 of FIGURE 6a, and the associated text in the specification. Previously, these clauses referred to parameters "obtained from the serving base station." This was an informal manner of describing the intended class of parameters, which should encompass the exemplary parameter, namely the E_c/I_o power measurement of a pilot signal "from the serving base station." After amendment, the parameters are more formally defined as "reflective of a signal received by the subject mobile station from the serving base station." This amendment is not intended to affect the scope of the claim, but rather to clarify it with more precise language, for the sole purpose of reducing the likelihood of arguments about the meaning of the claim, and, as such, is not a "narrowing amendment for purposes of patentability."

Removal of the "means" language in Claim 13 is not a narrowing amendment for patentability, but is intended to avoid construction of Claim 13 under 35 USC 112, sixth paragraph. Please see MPEP § 2181 in this regard, particularly § 2181 II., first paragraph. This change simplifies the burden of examination, because proper examination of "means plus function" language, which must be interpreted in accordance with 35 USC 112 sixth paragraph, requires the Examiner to determine the actual structure described in the specification that performs the recited function. A means-plus-function claim must be construed as being limited to such structure, together with equivalents and sometimes with implicit structure (as can be seen by careful review of MPEP § 2181). By avoiding such onerous "means-plus-function" construction requirements, the current

amendment permits a much simpler examination in which only the literal meaning of the language need be considered, thus simplifying the burden of examination. To avoid adding new matter, the recitation of structure set forth by the current amendment to replace the previous "means" language merely invokes blocks that are implicitly present, and indeed unavoidable, to perform as required by Claim 13 as originally filed. In this regard, see MPEP § 2181 II., third paragraph.

Further in Claim 13, recitation of "a current value" of certain parameters (supported, for example, by FIGURE 6b) is added to avoid possible confusion between the first parameter when used in clause (a) prior to sending a PSMM, and the same-named parameter when used in clause (b) after receiving an HDM. Such clarification does not constitute a narrowing of the scope of the claim.

The amendments to Claims 19 and 21 are supported, for example, at page 20 lines 21-25, and page 23 lines 5-10, in conjunction with, *e.g.*, FIGURES 6b and 8b that show the RL-HHO as the completion step of a handoff.

New Claims 23-26 are generally supported by the claims as originally filed. Further support is as described above, and yet further support is identified subsequently in regard to patentability of the new claims.

Rejections under 35 USC § 103

In section 4 of the current Office Action, the Examiner rejects pending Claims 1, 2, 4-7, 9, 11-18, and 21 under 35 USC § 103(a) as obvious over U.S. Patent 6,567,666 to Czaja ("Czaja" or "the '666") in view of U.S. Patent 6,233,455 to Ramakrishna ("the '455"). It is respectfully submitted that the claims, as previously on file, were nonobvious over the cited prior art, and that this will become apparent upon review of the remarks set forth below. However, the grounds for rejection presented by the Examiner reveal a manner in which the claims may be clarified, and it is submitted that the remarks set forth below establish clearly that the claims, particularly as currently amended herein, are nonobvious over the cited prior art.

Prior to addressing explicit claim language, some general remarks are set forth to provide a context in which the distinctions between the invention as presently claimed, and the cited prior art, can be readily recognized. These general remarks are not to be construed as either arguing the patentability of, or limiting the scope of, any particular claim or combination of claims. The relevance of these general remarks to the patentability of specific claims, and to explicit requirements in such claims, is set forth in subsequent remarks.

Teachings of the Cited References

U.S. Patent 6,233,455 to Ramakrishna ("the '455") is directed to considerations as to when an MS should prepare and transmit a Pilot Strength Measurement Message (PSMM), and when the "system" should send a Handoff Direction Message ("HDM") to the MS. According to the IS-95 CDMA standard that defines the context in which the '455 was developed, a handoff follows according to a set procedure, once it has been directed by the CDMA system via an HDM. The system may choose to send an HDM with respect to some target base station (BS) after it receives a PSMM from a mobile station (MS) reporting such target BS. If an HDM is sent with respect to the target BS, then the MS performs the predetermined handoff procedure, finally sending a Handoff Completion Message (HCM) back to the system to indicate that the process was successfully completed (see paragraph bridging col. 1, col. 2 of the '455).

In the context of the '455, once a PSMM has been sent to the CDMA "system" (e.g., the BS, base station controller, or mobile station controller), a decision as to whether to complete a handoff is made entirely by the "system." Once the system responds to such PSMM by sending an HDM, the '455 considers the handoff "as good as done." In this regard, see also Fig. 2A and associated text col. 5 lls. 7-54, particularly lls. 28-34 describing blocks 210 and 212, wherein after the network receives PSMM at block 206, it makes a decision at 208 as to whether the BS sector should be added to the active set, after which no mention is made of further processing; the handoff is simply treated as completed, with no mention even of sending an HDM, let alone any further decisions by the MS as to whether to undertake such handoff.

Of the various substeps within the handoff process, the '455 primarily addresses (a) preparation/transmittal of a PSMM by an MS, and (b) preparation/transmittal of an HDM by the CDMA system. For example, consider Figs. 3A-B of the '455, with associated text at col. 6 line 7 – col. 7 line 67. Col. 6 lls. 7-22 is a summary, and ends with transmission of an HDM. Further process steps at the MS are merely assumed. The process of Figs. 3A-B begins when the network receives a PSMM at block 300. The decision blocks 308, 314, 316, 320, 330, 334, 336 and 340 together indicate a process by which the system decides whether to "approve" adding a new BS to the active set by sending an HDM. This is necessarily performed by the system (or BS), because all paths eventually result in creation of an HDM. Either the HDM (at block 348) or a BSAO (at block 346) is ultimately transmitted, and these are BS/system messages. When an HDM is transmitted, it includes a new set of parameters (T_ADD, T_DROP, T_COMP, and T_TDROP) that the MS will use (after completion of the present handoff) to decide whether and when to submit the next PSMM. (For T_ADD see block 202/block 204 of Fig. 2A; for T_COMP see Fig. 4A items 406 and 404;

T_DROP and T_TDROP are items 412 and 414 of Fig. 4B, which also trigger a PSMM, see col. 2 lls. 57-60). Those parameters determine whether the MS is to send a PSMM, which may in turn cause the system to choose to send an HDM (or not). However, the important point is that these parameters have nothing to do whatsoever with whether, when or how the MS completes a handoff after it has been directed by an HDM message received from the system. As noted above, the '455 simply assumes that once the HDM is transmitted, the handoff will be performed as expected. This assumption was reasonable in the context of the '455 patent, because reverse links handoffs were transparent, and required no special action by the MS.

Previously Unrecognized Problem

The foregoing description makes clear that reverse-link hard handoffs (RL-HHOs) were of little or no interest to the inventors of the '455. In the IS-95 context, effective at the time the '455 was filed, all CDMA stations in range were able to concurrently receive transmissions from a given MS. Therefore, an MS did not need to "do" anything to complete a reverse link handoff, but merely continued transmitting as before. The transition between 2G and 3G CDMA generations changed this situation. BSs of different generations typically employ different modulations, coding rates, and/or frequencies, such that an MS cannot concurrently transmit to such different-generation BSs. Therefore, an MS in that situation must stop transmitting to one BS (break the RL connection) in order to change the transmitting parameters so that it can begin transmitting to another BS of a different generation (make a new RL connection). At the moment of initiating a reverse link ("RL") handoff, an MS ceases transmitting to an "old" BS and then begins transmitting to a "new" BS (see subject specification pg. 8 lls. 16-18, and pg. 20 lls. 9-11). This is a reverse-link hard-handoff (RL-HHO), which became necessary only when mixed-generation CDMA BSs were concurrently deployed in the same geographic areas.

The subject application sets forth a solution to a problem associated with RL-HHOs. RL-HHOs did not exist, as a practical matter, at the time the '455 was written, so of course there could be no awareness of problems, let alone solutions, associated therewith. It is true that the Czaja '666 reference addresses the problems of intergenerational handoffs. However, the '666 is directed to solving problems associated with forward-link handoffs, and does not recognize or address problems associated with reverse-link handoffs. The failure of the '666 to address RL-HHO related problems is the reason that Mr. Czaja (who is the lead inventor on both the cited '666 patent and the subject application) found it necessary to file the present application. The present application addresses the further, and quite distinct, problems associated with RL-HHOs.

When the need for RL-HHOs was recognized, it was decided that RL-HHOs would be performed as soon as the MS received a predetermined number of good frames from the new BS. This approach initially seemed satisfactory, and problems were not immediately noticed or addressed. Lacking awareness of a problem with the RL-HHO procedure, the Czaja '666 reference gives serious attention only to finding a way to perform a forward link soft handoff (SHO) between BSs of different CDMA generations (*e.g.*, 2G/3G). In the '666, Czaja proposes employing a new messaging structure for General Handoff Direction Messages (GHDMs) sent to MSs. Upon receiving such a GHDM, the MS allocates at least one of the "fingers" of its rake receiver to receive the "new" generation BS (see '666, col. 6 last par.; or, for a more complete preferred process, see col. 7 lls. 39-60). This involves soft handoff of the forward link, from the BS to the MS.

Reverse link handoff is mentioned only cursorily in the '666 (see col. 7 lls. 53-58), and no teaching or suggestion is made to change the prior art approach (which involved simply counting a number of good received frames before making such a reverse link handoff). Thus, the Czaja reference, like others prior to the present application, does not recognize, let alone address, the problems associated with RL-HHOs, such as dropped calls due to non-optimal timing. This problem, however, is described in some detail in the background of the present application (see pg. 8 and particularly pg. 9 of the Applicants' specification).

To solve the dropped-call problems caused by sub-optimum RL-HHOs, the present application is particularly concerned with those portions of the handoff process that transpire AFTER the system has responded to a PSMM by sending an HDM (*e.g.*, an intergenerational HDM, or IGHDM). Any appropriate techniques may be used by MSs to determine when to send PSMMs, and any appropriate techniques may be used by the CDMA system controller to determine whether and when to send HDMs to MSs. (Note, however, that certain new types of HDMs, such as intergenerational HDMs "IGHDMs" are suggested by the Applicants' specification, and are claimed as parts of inventive combinations).

The prior art, as represented for example by the '455 reference, teaches a variety of procedures for executing PSMMs and sending HDMs. Those procedures transpire before the stage of reverse link handoff is reached, and in any event have no practical bearing on reverse link handoffs as a separate process. As such, they cannot in any way anticipate the claimed method and apparatus, though they may be perfectly well used concurrently with the claimed method and apparatus. The acts taught by the '455 reference form a perfectly acceptable prelude to the steps recited, for example, in the method claims of the present application.

Comparing the Claimed Invention to the Cited References

New clause (a) of Claim 1, as currently amended, recites "a) first receiving, at a subject mobile station, a message from the serving base station directing performance of a handoff to the target base station; and thereafter" The '455 presents no relevant teaching of handoff steps that are subsequent to a direction from the system (e.g., an HDM, which is transmitted from the serving base station). As such, this new clause removes any possible ambiguity by which it might have been incorrectly concluded that the steps taught in the '455 have any bearing on the invention defined by Claim 1. Rather, the acts taught in the '455 are now explicitly required, by new clause (a), to occur prior to the steps (b) – (f) recited in Claim 1. New clause (a) also distinguishes the claims of related application 09/687,199, presuming that it is possible for reverse-link handoff decision steps to be performed prior to receipt of an HDM, thereby obviating the double patenting rejection.

However, while the new clause (a) of Claim 1 clarifies a distinction between the cited references and the claimed invention, Claim 1 as originally filed was already distinguished over the cited references. Neither the '666 nor the '455 disclose or teach the acts that were recited in clause (e) of Claim 1 as previously on file. As noted hereinabove, the '455 did not consider a RL handoff as a separate entity, and the '666 did not propose a method of determining when to initiate the RL-HHO that depends on comparing signal parameters. Withdrawal of the current rejection of the independent claims as obvious over the '455 in combination with the '666 was already warranted, because the '455 and '666 together fail to teach all of the elements recited in the independent claims as previously on file. Thus, it would not be correct to say that any such new search is necessitated by the current amendments. As such, should the Examiner decide to reject the amended claims in the present application, it is respectfully submitted that such a rejection should be made non-final.

As remarked above, the '455 contains no relevant teaching in regard to reverse-link handoffs, and the '666 contains no teaching in this regard except a brief reference to "the inter-generation handoff requirements specified in the GHDM message (...) are satisfied." (see col. 7 lls. 53-58) Thus, the '666, at most, merely reflects the state of the IS-2000 CDMA standard in effect at that time. That standard is believed to have directed the use of a frame counter to determine an initiation time of the RL-HHO, as described in the background section of the present application. In any event, the Czaja '666 reference makes no particular suggestion for controlling the reverse-link handoff.

As such, neither of these references (the '455 and the '666), disclose, teach or fairly suggest initiating a reverse-link handoff according to the conditions specified in the last clause of Claim 1 (now Clause (f)),

original Clause (e)) as currently amended. In the absence of such teaching, these references, even if combined, fail to establish a *prima facie* case of obviousness for Claim 1, as currently amended (see MPEP § 2143.03). As such, Claim 1, at least as currently amended, is nonobvious over these two references, whether considered individually, or in combination.

Claims 2-12, as currently amended, properly depend from Claim 1, and are accordingly, for the reasons provided above with respect to amended Claim 1, also nonobvious over the cited combination of references at least by virtue of such dependency.

Because the current amendments to independent Claims 13 and 22 are sufficiently similar to the amendments described in detail above with respect to amended Claim 1, the import of such amendments may readily be understood by consideration of the remarks that have been set forth above in regard to analogous amendments to Claim 1. Moreover, Claims 13 and 22 both require reverse-link handoffs to be performed based on a comparison of parameters in a manner that is not taught in either the '455 or the '666 reference. As such, both claims are nonobvious over the cited prior art for reasons similar to those set forth with respect to Claim 1. Moreover, because Claims 14-21 properly depend from amended Claim 13, at least after any current amendment, these claims are also nonobvious over the cited prior art at least by virtue of their dependency.

Patentability of New Claims Over Cited Prior Art

New independent Claim 23 is generally similar to Claim 1, as currently amended. However, the preamble recites a "method of controlling completion of a handoff." This wording reflects, for example, FIGURE 6b, and provides an alternative to similarly situated language recited in, for example, Claim 1 as currently amended. New Claim 23 also recites different language to define the basis for a decision to initiate a reverse-link handoff. Despite these differences, new Claim 23 is nonobvious over the cited prior art references for reasons similar to those set forth with respect to Claim 1. In particular, neither the '455 nor the '666 makes any suggestion that comparisons of the recited parameters should be made as a basis for initiating a reverse-link handoff, as required by clauses (d)-(f) of new Claim 23. As such, even the combination of these references cannot support a *prima facie* case of obviousness of new Claim 23, which is accordingly nonobvious over these cited references. New Claims 24-26 properly depend from new Claim 23, and are accordingly also nonobvious over these cited references, both individually and in combination.

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Conclusion

In view of the foregoing remarks and amendments, it is respectfully submitted that each claim, as presently pending in the subject application, is in condition for immediate allowance. As such, the Examiner is respectfully requested to withdraw each of his grounds for rejection, and to promptly issue a Notice of Allowance in respect of all pending claims.

It is particularly noted that, as can be seen from the remarks set forth above, none of the independent claims, as originally filed, were rendered obvious by the cited prior art. Accordingly, should the Examiner find new grounds for rejecting any pending claims, a further non-final Office Action setting forth such new grounds is respectfully requested.

Should the Examiner find any issue that can benefit from further clarification, he is respectfully urged to contact the undersigned by telephone. The undersigned will be pleased to do everything possible to reduce the time and effort required to complete a thorough examination of the subject application.

The Commissioner is authorized to construe this paper as including a petition to extend the period for response by the number of months necessary to make this paper timely filed. Fees or deficiencies required to cause the response to be complete and timely filed may be charged, and any overpayments should be credited, to our Deposit Account No. 50-0490.

Respectfully submitted,

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